

- AI
- (a) periodically transmitting an ALOHA message to invite protocol messages by said master device;
 - (b) receiving a data link request with Quality of service perimeters by a source slave device from an OSI layer above said Medium Access Control layer, said Quality of service parameters including a bandwidth range for data transfer;
 - (c) transmitting a data link request by said source slave device to said master device in response to said ALOHA message, said data link request including said bandwidth range requirement for data transfer;
 - (d) receiving said data link request by said master device;
 - (e) determining the availability of said source slave device and said target slave device for communication;
 - (f) providing a data slot assignment by said master device to said source slave device and said target slave device, said data slot assignment having a start time for communication and a slot length within said bandwidth range;
 - (g) communicating said data slot assignment by said master device to said source slave device and said target slave device; and
 - (h) reallocating current data slots assignments within said frame prior to providing said data slot assignment wherein said step of reallocating comprises:
 - (1) iterating through each said current time slot assignment,
 - (2) determining whether each said current data block assignment is to be assigned a new slot start time,
 - (3) assigning a new slot start time to said current data slot assignments determined to be reassigned,

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- (4) determining whether each said current data slot assignment is to be reassigned a new slot length,
 - (5) assigning said new slot length to said current data slot assignments determined to be reassigned, and
 - (6) communicating said modified data slot assignment by said master device to said source slave device and said target slave device.
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Please add the following claims:

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12. A product for providing a Medium Access Control Protocol for transmission of data between a plurality of devices in a network having a master device that control TDMA frame generation and a plurality of slave devices wherein each of said plurality of devices includes a processing unit, said product including:

a first set of instructions for directing a processing in said master device to:

transmit an ALOHA signal in a TDMA frame periodically,

receive a request from a source slave device for a data transfer between said source slave device and a target slave device wherein said request includes a bandwidth requirement for said data transfer,

reallocate a plurality of time slots in a TDMA frame for transmission between devices to remove spans of time between consecutive data slots in response to receiving said request for said data transfer, and

assign a new time slot for said data transfer based upon said bandwidth request in response to reallocating said plurality of time slots; and

a media readable by said processing unit in said master device that stores said first set of instructions.

13. The product of claim 12 wherein said first set of instructions further comprise:
instructions for directing said processing unit in said master device to:

determine whether said source device and said target device are in an on-line state; and

transmit a deny data transfer signal to said source slave device in response to a determination that said source slave device and said target slave device are not in an on-line state.

14. The product of claim 13 wherein said first set of instructions further comprise:
instructions for directing said processing unit in said master device to:

transmit a request for data transfer to said target slave device,

receive an acknowledgement from said target slave device, and

wherein assigning said data slot is responsive to receiving said acknowledgement.

15. The product of claim 12 wherein said new data slot assignment includes a start time and slot length.

16. The product of claim 12 wherein said instructions for reallocating said plurality of time slots comprises:

instructions for directing said processing unit to:

read a one of said plurality of data slots,

determine whether a start time of said data slot must be changed,

adjust said start time of said one of said plurality of data slots in response to a determination should start time should be changed, and

transmit said adjusted to devices using said one of said plurality of time slots for a data transfer.

17. The product of claim 16 wherein said instructions for reallocating said plurality of time slots comprises:

instructions for directing said processing unit of said master device to:

determine whether length of said one of said plurality of time slots must be adjusted,

adjust said length in response to a determination that said length of said one of said plurality of time slots must be adjusted, and

transmit said adjusted length of said one of said plurality of time slots to devices using said one of said plurality of time slots for a data transfer.

18. The product of claim 12 further comprising:

A second set of instructions for directing a processing unit in a one of said plurality of slave device to:

receive a request from an application for a data transfer,

generate a request for a data transfer that includes a bandwidth required for said data transfer, and

transmit said request to said master device; and

a media readable by said processing unit in said one of said plurality of slave devices for storing said second set of instructions.

19. The product of claim 18 wherein said request further includes at least one parameter from a group of parameter consisting of size of data to transfer, latency range specification, or optimal bandwidth range.

20. A method for providing data transfer in a network including a master device which controls said data transfers and a plurality of slave devices, said method comprising:

transmitting an ALOHA signal in a TDMA frame periodically from said master device to said plurality of slave device;

receiving a request in said master device from a source slave device for a data transfer between said source slave device and a target slave device wherein said request includes a bandwidth requirement for said data transfer;

reallocating a plurality of time slots in a TDMA frame for transmission between devices by said master device to remove spans of time between consecutive data slots in response to receiving said request for said data transfer; and

assigning a new time slot for said data transfer based upon said bandwidth request in response to reallocating said plurality of time slots.

21. The method of claim 20 further comprising:

determining whether said source device and said target device are in an on-line state; and

transmitting a deny data transfer signal from said master device to said source slave device in response to a determination that said source slave device and said target slave device are not in an on-line state.

22. The method of claim 21 further comprising:

transmitting a request for data transfer to said target slave device;

receiving an acknowledgement from said target slave device; and

wherein assigning said data slot is responsive to receiving said acknowledgement.

23. The method of claim 21 wherein said new data slot assignment includes a start time and slot length.

24. The method of claim 22 said step of reallocating comprises:

reading a one of said plurality of data slots;

determining whether a start time of said data slot must be changed;

adjusting said start time of said one of said plurality of data slots in response to a determination should start time should be changed; and

A2 transmitting said adjusted to devices using said one of said plurality of time slots for a data transfer.

25. The method of claim 24 wherein said step for reallocating said plurality of time slots further comprises:

determining whether length of said one of said plurality of time slots must be adjusted;

adjusting said length in response to a determination that said length of said one of said plurality of time slots must be adjusted; and

transmitting said adjusted length of said one of said plurality of time slots to devices using said one of said plurality of time slots for a data transfer.
